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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/503,205	02/14/2000	Jun Kogure	826.1590/JDH	6229
21171	7590	12/21/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			KLIMACH, PAULA W	
			ART UNIT	PAPER NUMBER
			2135	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/503,205

Applicant(s)

KOGURE, JUN

Examiner

Paula W. Klimach

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 is/are allowed.
- 6) ☒ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

This office action is in response to amendment filed on 10/19/05. Applicant amended Claims 1, 8, 9, 10, 11, and 16. The amendment filed on 10/19/05 have been entered and made of record. Therefore, presently pending claims are 1-19.

### ***Response to Arguments***

Applicant's arguments filed 10/19/05 have been fully considered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 11-12 and 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al. (4,687,988) view of the math word article (Finite Field).

*In reference to claims 11 and 16* Eichelberger discloses a data generating method, comprising: a condition that is specified by the user (column 3 lines 22-31); generating a plurality of random numbers based on the designated condition (column 3 lines 39-40); generating expression data of the finite field based on the generated random numbers (part 30 Fig. 1); and storing the generated designated expression data (column 3 lines 39-47).

Eichelberger does not disclose designating a condition for a finite field.

Leppek suggests a data generating apparatus and computer readable storage medium, comprising: an input device inputting a condition for designating a finite field (column 4 lines 33-51).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the system of Leppek in the good simulation machine of Eichelberger so that the random number produced by the pseudo random number generator of Eichelberger so that the system of Leppek would generate expressions for all the values created by the good machine and store them in the storage space of Eichelberger. One of ordinary skill in the art would have been motivated to do this because this would be a method of using the testing system of Eichelberger to test the system of Leppek.

Although Leppek discloses a system that uses PGP (column 4 lines 14-17), Leppek does not provide details that would indicate that the PGP algorithm whose conditions are of a finite field corresponding to a mathematical finite aggregate in which four arithmetical operations are defined, a number of elements of the finite aggregate being expressed as  $p^m$  with  $p$  and  $m$  as prime number and a positive integer indicating an extension degree, respectively. In addition, Leppek is silent on the origins of the key 170 and therefore a condition specified by a user.

Schneier discloses the details of the PGP algorithm (page 584), which includes IDEA. The IDEA algorithm has S-boxes which have the condition are of a finite field corresponding to a mathematical finite aggregate in which four arithmetical operations are defined, a number of elements of the finite aggregate being expressed as  $p^m$  with  $p$  and  $m$  as prime number and a positive integer indicating an extension degree, respectively (page 320 paragraph 2). Schneier

discloses the user entering a passphrase that is used as the conditions for the hash algorithm to create the key (page 174 paragraphs 2-7).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use details of the PGP algorithm as disclosed by Schneier and have a user enter the passphrase as disclosed in Schneier to enter the key that is disclosed by Leppek. One of ordinary skill in the art would have been motivated to do this because Leppek does not disclose the details of the PGP algorithm that is used as part of the invention while Schneier gives the details and the user entered passphrase gives the user the ability to be as unpredictable as possible.

*Regarding claims 12 and 17*, the system of Leppek further comprising an operation device performing a finite field operation based on the expression data stored in said expression data storage device (column 5 lines 34-52).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the system of Leppek in the good simulation machine of Eichelberger so that the random number produced by the pseudo random number generator of Eichelberger so that the system of Leppek would generate expressions for all the values created by the good machine and store them in the storage space of Eichelberger. One of ordinary skill in the art would have been motivated to do this because this would be a method of using the testing system of Eichelberger to test the system of Leppek.

*Regarding claims 14, and 18*, wherein when a bit length of a prime number which describes the finite field is inputted as the condition, said generation device automatically generates prime number data corresponding to the bit length and stores the generated prime

number data in said expression data storage device. Leppek uses different encryption routines (column 4 lines 14-17) one well known example is the RSA encryption routine, which uses random keys. The size of the keys is a design choice. The keys are inherently developed using a random number generator, which would generate them automatically

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the system of Leppek in the good simulation machine of Eichelberger so that the random number produced by the pseudo random number generator of Eichelberger so that the system of Leppek would generate expressions for all the values created by the good machine and store them in the storage space of Eichelberger. One of ordinary skill in the art would have been motivated to do this because this would be a method of using the testing system of Eichelberger to test the system of Leppek.

*Regarding claims 15 and 19*, further comprising: a designation device designating expression data of a finite field (column 5 lines 6-18); and a verifier device verifying whether the designated expression data are suitable, the verifier device sores designated expression data in said expression data storage device if the designated expression data are suitable, and the verifier device asks the designation device for other expression data if the designated expression data are not suitable (claim 5 lines 19-33). The supervisory encryption assembly manager processes the sequence and therefore is responsible for verifying that the encryption process is carried out as designed.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the system of Leppek in the good simulation machine of Eichelberger so that the random number produced by the pseudo random number generator of Eichelberger so

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that the system of Leppek would generate expressions for all the values created by the good machine and store them in the storage space of Eichelberger. One of ordinary skill in the art would have been motivated to do this because this would be a method of using the testing system of Eichelberger to test the system of Leppek.

**Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Leppek as applied to claim 11 above, and further in view of Wright.

Leppek does not expressly disclose the generation of polynomial expressions

Regarding claims 13, Wright discloses a random polynomial generator wherein when an extension degree which describes the finite field is inputted as the condition, said generation device automatically generates irreducible polynomial data corresponding to the extension degree and stores the irreducible polynomial data in said expression data storage device (part 2.1 page 2).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the polynomial generator as in Wright in the system of Leppek. One of ordinary skill in the art would have been motivated to do this because Leppek discloses the use of conventional encryption algorithms (column 4 lines 14-17) and Wright discloses a polynomial generator which is satisfactory and has already been proven (Introduction 1 page 1).

### *Allowable Subject Matter*

**Claims 1-10** are allowed.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paula W. Klimach whose telephone number is (571) 272-3854. The examiner can normally be reached on Mon to Thr 9:30 a.m to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on (571) 272-3859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

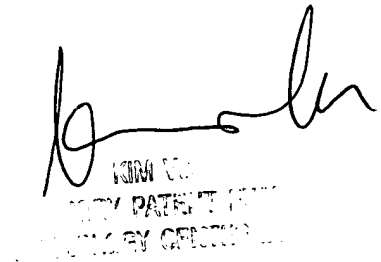


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PWK

Tuesday, December 20, 2005



A handwritten signature in black ink is positioned above a rectangular official stamp. The stamp contains the text "U.S. PATENT AND TRADEMARK OFFICE" in a bold, sans-serif font, with "U.S. PATENT AND" on the top line and "TRADEMARK OFFICE" on the bottom line.